REMARKS

At the time the Office Action was mailed, claims 1-22 were pending. Claims 1 and 20 have been amended to set forth the recited subject matter more clearly. Claims 3 and 21 have been canceled. Reconsideration of the application as amended is respectfully requested.

Objections to the Specification

The Examiner objected to the title of the application as not being sufficiently descriptive. While Applicant's do not necessarily agree with the Examiner's objection, the title has been amended. Applicant's respectfully submit that the amended title is sufficiently descriptive to overcome the Examiner's objection.

Rejections Under 35 U.S.C. § 102

The Examiner rejected claims 1-10 under 35 U.S.C. § 102(b) as being disclosed by Thomson, (EP 780986 A2). With regard to independent claim 1, the Examiner stated:

> Claim 1, "A method of characterizing a plurality of digital-to-analog converters for a plurality of color channels of a video subsystem of a computer system, the method comprising the steps of: driving the plurality of digital-to-analog converters [Each of N current summation type digital-to-analog (D/A) converters (23) of a liquid crystal display driver generates an analog signal (OUT) which provides pixel video information] with a set of predetermined input digital values [when the data to be converted is at full scale]; measuring a plurality of output analog voltages [is compared in a computer (131) with a reference voltage (VREF)] of the plurality of digital-to-analog converters in response to the driving step; and storing [developed in a capacitor] a plurality of output analog voltages" is disclosed on front page at (57). (Examiner's note: The preamble prepositional clauses, "for a plurality of color channels of a video subsystem of a computer system", carry no patentable weight.

Applicants respectfully traverse this rejection. Anticipation under Section 102 can be found only if a single reference shows exactly what is claimed. *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 U.S.P.Q. 773 (Fed. Cir. 1985). For a prior art reference to anticipate under Section 102, every element of the claimed invention must be identically shown in a single reference. *In re Bond*, 910 F.2d 831, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990). To maintain a proper rejection under Section 102, a single reference must teach each and every element or step of the rejected claim. *Atlas Powder v. E.I. du Pont*, 750 F.2d 1569 (Fed. Cir. 1984). Thus, if the claims recite even one element not found in the cited reference, the reference does not anticipate the claimed invention.

The present application is directed to a method of characterizing digital-to-analog converters (DAC) in a video subsystem having a non-volatile memory wherein DAC characterization data may be stored. Paragraph 8, lines 17-20. In one exemplary embodiment, the non-volatile memory may comprise an electrically erasable programmable read-only memory (EEPROM). Paragraph 8, lines 20-21. DAC characterization data may be acquired by providing predetermined digital input values into the DAC and measuring the voltage at the output of the DAC. *See* e.g., paragraphs 11, 13 and 14. The digital output data is stored in the non-volatile memory and serves as characterization data for the analog performance of the DACs. Paragraph 13, lines 19-22. The characterization data is stored in the non-volatile memory before or during manufacture and may be accessed during operation of the video subsystem such that color management software may be implemented to perform color correction or optimization using the digital characterization data. Paragraph 9, lines 1-4; paragraph 11, lines 15-21.

Accordingly, claim 1 recites, in relevant part, a method of characterizing a plurality of DACs comprising the step of "storing a plurality of digital characterization values corresponding to the plurality of output analog voltages in a non-volatile memory of the video subsystem such that the digital characterization values are permanently stored in the non-volatile memory."

The Thomson reference does not disclose permanently storing a plurality of digital characterization values in a non-volatile memory, as recited in claim 1. In rejecting claims 1 and 3, the Examiner correlated the error signal (ERROR) disclosed in Thomson with the "digital characterization values" recited in claim 1. Further, the Examiner correlates the capacitor (CP2) disclosed in Thomson with the recited "non-volatile memory." Applicants respectfully traverse these assertions.

In contrast to the recited subject matter, Thomson discloses a D/A converter having a comparator therein configured to auto-calibrate an output voltage by comparing it to a reference voltage. Col. 2, lines 17-21. The comparator generates an error signal (ERROR) in accordance with the difference between the reference signal and the output signal that is indicative of the analog output signal. Col. 2, lines 47-50. The error signal (ERROR) that is associated with a given D/A converter is coupled to a switched network of the given D/A converter for automatically adjusting the output signal of the D/A converter in a servo-loop manner. Col. 2, lines 50-56.

At best, Thomson discloses a real-time feedback control system wherein D/A converter output is adjusted after comparing the output voltage to a reference voltage. It is

clear that adjustments to the D/A converter output are made during device operation by comparing the output voltage of the D/A converter to the reference voltage and adjusting the output voltage accordingly. While Applicant's do not necessarily agree with the Examiner's characterization of the error signal disclosed in the Thomson reference as the presently recited "digital characterization values," even if this characterization were plausible, it is clear that Thomson *does not* disclose a non-volatile memory for permanently storing the digital characterization values, as recited in claim 1. Applicants respectfully traverse the Examiner's characterization of the capacitor CP2 as the presently recited non-volatile memory. Claim 1 has been amended to more clearly set forth the recited subject matter. Applicants respectfully submit that the Thomson reference does not disclose the step of permanently storing characterization values in a non-volatile memory, as recited in claim 1.

Because Thomson does not disclose each of the elements recited in claim 1, the Thomson reference cannot possibly anticipate claim 1 or those claims dependent thereon. Accordingly, Applicants respectfully request withdrawal of the Examiner's rejection and allowance of claims 1, 2 and 4-10.

The Examiner rejected claim 11 under 35 U.S.C. § 102(b) as being disclosed by Wynne, (U.S. Patent No. 5,517,191). With regard to independent claim 11, the Examiner stated:

> Claim 11, "A computer system [col. 2, lns. 52], comprising: a processor; and a video subsystem coupled to the processor, the video subsystem comprising: a plurality of digital-to-analog converters for a plurality of color channels of the video subsystem [col. 3, lns. 43-49]; a video connector coupled to the plurality of digital-to-analog converters for connection to a monitor [shown in figs. 2 and 4]; and a non-volatile memory storing a plurality of digital characterization

values for the plurality of digital-to-analog converters [shown in fig. 2]" is disclosed by Wynne [supra is detailed].

Applicants respectfully traverse this rejection. Claim 11 recites, in relevant part, "a non-volatile memory storing a plurality of digital characterization values for the plurality of digital-to-analog converters." As with the Thomson reference, the Wynne reference discloses a calibration circuit for a DAC wherein the output signal is calibrated by implementing a feedback loop. As with the Thomson reference, the Wynne reference discloses a mechanism for adjusting the output based comparisons made during operation of the DAC wherein a reference voltage is compared to an output of a DAC. The Wynne reference *does not* disclose "a non-volatile memory storing a plurality of digital characterization values for the plurality of digital-to-analog converters," as recited in claim 11. The Examiner cites Fig. 2 as showing the presently recited non-volatile memory. Applicants respectfully traverse this assertion. While Fig. 2 of the Wynne reference illustrates a hard disk drive 12A, the hard disk drive 12A can hardly be considered part of the video subsystem, as in claim 11. Even if the hard disk drive 12A could be characterized as the non-volatile memory of a video subsystem, there is nothing in the Wynne reference to suggest that digital characterization values for DACs are stored in the hard disk drive 12A. Accordingly, the Wynn reference does not disclose "a non-volatile memory storing a plurality of digital characterization values for the plurality of digital-to-analog converters," as recited in claim 11.

Because the Wynne reference fails to disclose all of the elements recited in claim 11, the Wynne reference cannot possibly anticipate claim 11. Accordingly, Applicants respectfully request withdrawal of the Examiner's rejection and allowance of claim 11.

In view of the remarks set forth above, Applicants respectfully submit that the subject matter of claims 1, 2 and 4-11 is not anticipated by either of the cited references. Therefore, Applicants respectfully request withdrawal of the Examiner's rejections and allowance of claims 1, 2 and 4-11.

Rejections Under 35 U.S.C. § 103

The Examiner rejected claims 12-22 under 35 U.S.C. § 103(a) as being unpatentable over Thomson (EP 780986 A2), as applied to claim 10 above, and further in view of Wynne (U.S. Pat. No. 5,517,191). With specific regard to independent claims 16 and 20, the Examiner stated:

> Claim 16, "A video subsystem for a computer system, comprising: a plurality of digital-to-analog converters for a plurality of color channels for the video subsystem; and a non-volatile memory storing a plurality of digital characterization values for the plurality of digital-to-analog converters" is disclosed supra for claim 11.
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> Claim 20, " A method of characterizing a plurality of color channels of a video subsystem of a computer system, the method comprising the steps of: driving the plurality of color channels with a set of predetermined input digital values; measuring a plurality of output analog signals of the plurality of color channels in response to the driving step; and storing a plurality of digital characterization values corresponding to the plurality of output analog signals" is disclosed supra for claims 1 and 11.
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> Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply predetermined inputs disclosed by Thomson in combination with the color channels of rgb disclosed by Wynne, and motivated to combine the teachings because it would be just as applicable for Wynne since he employs a plurality of DACs as revealed by Wynne in abstract.

Applicants respectfully traverse these rejections. The burden of establishing a *prima facie* case of obviousness falls on the Examiner. *Ex parte Wolters and Kuypers*, 214 U.S.P.Q. 735 (PTO Bd. App. 1979). Obviousness cannot be established by combining or modifying the teachings of the prior art to produce the claimed invention absent some teaching or suggestion supporting the combination or modification. *See ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984). Accordingly, to establish a *prima facie* case, the Examiner must not only show that the combination or modification includes *all* of the claimed elements, but also a convincing line of reason as to why one of ordinary skill in the art would have found the claimed invention to have been obvious in light of the teachings of the references. *See Ex parte Clapp*, 227 U.S.P.Q. 972 (B.P.A.I. 1985). When prior art references require a selected combination or modification to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gained from the invention itself, i.e., something in the prior art as a whole must suggest the desirability, and thus the obviousness, of making the combination or modification. *See Uniroyal Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 5 U.S.P.Q.2d 1434 (Fed. Cir. 1988).

Claims 16 and 20 recite subject matter similar to the subject matter discussed above with reference to claims 11 and 1, respectively. Specifically, claim 16 recites a video subsystem comprising "a non-volatile memory storing a plurality of digital characterization values for the plurality of digital-to-analog converters." Claim 20 recites a method of characterizing a plurality of color channels of a video subsystem comprising "storing a plurality of digital characterization values corresponding to the plurality of output analog

signals in a non-volatile memory of the video subsystem such that the digital characterization values are permanently stored in the video subsystem."

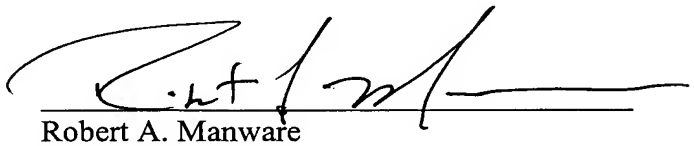
As discussed above, neither of the cited references, either alone or in combination, disclose the step of storing digital characterization values in a non-volatile memory or a video subsystem comprising a non-volatile memory storing a plurality of digital characterization values, as recited in the present claims. Accordingly, the cited references do not disclose all of the elements recited in the present claims, much less provide any suggestion to modify or combine the references in the matter recited in the present claims. Accordingly, the cited references cannot possible render the present claims obvious for at least the reasons discussed above with reference to the rejections under 35 U.S.C. § 102. Accordingly, Applicants respectfully request withdrawal of the Examiner's rejections and allowance of claims 12-20 and 22.

Conclusion

In view of the remarks and amendments set forth above, Applicants respectfully request allowance of claims 1, 2, 4-20 and 22. If the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number below.

Respectfully submitted,

Date: December 15, 2003



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